



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/714,528	11/14/2003	Daniel F. Sievenpiper	B-4345CIP 621324-5	2213
36716	7590	11/06/2006	EXAMINER	
LADAS & PARRY 5670 WILSHIRE BOULEVARD, SUITE 2100 LOS ANGELES, CA 90036-5679			TAKAOKA, DEAN O	
			ART UNIT	PAPER NUMBER
			2817	

DATE MAILED: 11/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	10/714,528	SIEVENPIPER, DANIEL F.
	Examiner	Art Unit
	Dean O. Takaoka	2817

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1) Responsive to communication(s) filed on 25 July 2006.  
 2a) This action is **FINAL**.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4) Claim(s) 1-11, 15, 17-28 and 30-40 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1-11, 15, 17, 19-22, 25, 28 and 38-40 is/are rejected.  
 7) Claim(s) 18, 23, 24, 26, 27 and 30-37 is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on 27 May 2005 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) Notice of References Cited (PTO-892)  
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)  
 3) Information Disclosure Statement(s) (PTO/SB/08)  
 Paper No(s)/Mail Date \_\_\_\_\_

4) Interview Summary (PTO-413)  
 Paper No(s)/Mail Date \_\_\_\_\_  
 5) Notice of Informal Patent Application  
 6) Other: \_\_\_\_\_

**DETAILED ACTION*****Double Patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1 – 11 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1 – 11 of copending Application No. 10/436,753 in view of Allison et al. (U.S. Patent No. 6,741,207).

This is a provisional obviousness-type double patenting rejection. Claims 1 – 11 of copending Application No. 10/436,753 recite the limitations in claims 1 – 11 of the current application where the term "broadband" used in the claims of the current Application are directed to the switch arrangement where the mechanical switches (MEMS) do not have frequency limitations per se and where switching used in "broadband" frequency applications such as in well-known telecommunications applications would have been obvious. Allison et al. teaches the most nearly identical antenna array in a specific broadband

application such as X-band for commercial aircraft; and where both inventions are by the same Assignee, thus suggesting the obviousness of the modification.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 15, 17, 19 – 22, 25, 28 and 38 – 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Overbury (US 4,730,192).

Claim 15.

Overbury shows a switch arrangement comprising: (a) a plurality of switches (D3) arranged on a substrate about a central point (Z), each switch being disposed on a common imaginary circle centered on said central point, said common imaginary circle having a diameter which is less than one half wavelength of frequencies in a passband (c3, Ins 27 where Overbury teaches the distance of switches D3 to central point Z = 0.05 or  $1/20\lambda$ ) of the switch arrangement; and (b) connections for connecting a RF port (via node X from directional couplers and/or C1) of each one of said switches with said central point wherein at least two of the switches are spaced equidistantly along the circumference of said imaginary circle (D3 x 4) and arranged to couple selectively at least two transmission lines (transmission lines defined as from C1 to D1 and D1 to D2) to said central point and wherein a pair of the at least two

transmission lines are disposed co-linearly of each other (transmission lines defined as from C1 to D1 and D1 to D2 which are co-linear to each other as well co-linear to lines on the opposite side of point Z) but does not teach well-known MEMs switches.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have substituted the diode switches with well-known art-recognized equivalent MEMs switches. Such a substitution would have been obvious since MEM and diode switches are both well-known and art-recognized equivalent type switches, thus suggesting the obviousness of the modification.

Claim 17.

Wherein at least one of the MEMS switches is arranged to couple selectively the central point of the switch arrangement to a central point associated with another switch arrangement via a transmission line segment.

Claim 19.

Further including a plurality of strip lines (lines connecting from central point Z to C1 and/or directional coupler), each one of said plurality of strip lines being coupled to a RF contact of one of said plurality of MEMS switches (where the circuit in Fig. 2 is printed on a substrate and where the lines are shown as straight lines, e.g. strips).

Claim 20.

Wherein said plurality of strip lines are radially arranged relative to said central point (Fig. 2).

Claim 21.

Wherein said plurality of strip lines and said plurality of MEMS switches are disposed on a first major surface of said substrate.

Claims 22 and 25.

Further including a plurality of control lines disposed on said first major surface of said substrate, each control line being coupled to an associated one of said plurality of switches and being disposed between two adjacent strip lines of said plurality of strip lines (where DC is applied to capacitive patches to bias diodes D1-D3 – c3, Ins 28-32; where striplines form signal lines and control lines; and where striplines from node X to D1 and D1 to D2 are between striplines extending from central point Z to D3 and from node X to C1).

Claims 28 and 38.

A method of making a switch arrangement (where the method is generic and defines or is defined by the final product) comprising: (a) disposing a plurality of MEMS switches on a substrate in a circular pattern about a point, the circular pattern having a diameter which is less than a half wavelength of frequencies in a passband of the switch arrangement; (b) disposing a plurality of RF lines disposed in a radial pattern relative to said point on said substrate; and (c) connecting said plurality of RF lines to a common junction point at said point on said substrate via said plurality of MEMS switches whereby operation of a one of said plurality of MEMS switches couples a one of said plurality of RF lines to said common junction, wherein at least two of the MEMS switches of said plurality of MEMS switches are arranged to couple selectively at least two RF

lines to said point and wherein a pair of the at least two RF lines are disposed co-linearly of each other (discussed in the reasons for rejection of the claims above).

Claim 39.

Wherein the centerline of the RF port is disposed perpendicular to a major surface of said substrate (where Z is the output and perpendicular to the substrate).

Claim 40.

Wherein the centerline of the RF port (to directional coupler from node X) is disposed parallel to a major surface of said substrate.

***Allowable Subject Matter***

Claims 18, 23, 24, 26, 27 and 30 – 37 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dean O. Takaoka whose telephone number is (571) 272-1772. The examiner can normally be reached on 8:30a - 5:00p Mon - Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Pascal can be reached on (571) 272-1769. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



dot

October 30, 2006